

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following comments is respectfully requested.

Claims 1-18 are pending in the present application. Claims 1-18 are amended by the present amendment.

Applicants respectfully submit that amendments to the claims find support in the application as originally filed, at least in the specification at page 17, line 25, to page 18, line 25. Thus, no new matter is added.

In the outstanding Office Action, Claims 1-18 were rejected under 35 U.S.C. § 101; Claims 1-18 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent 6,529,899 to Kraft et al. (herein "Kraft") in view of Payne "Semantic Web in UDDI" (herein "Payne") and U.S. Patent 5,862,325 to Reed et al. (herein "Reed").

Regarding the rejection under 35 U.S.C. § 101, independent Claim 1 is amended to recite that the coordination plan creating section is configured to receive a user's request, create a web service coordination plan based on the request, and transmit the created web service coordination plan to the user. Independent Claims 7 and 13 include similar steps. Accordingly, the claimed inventions receive a user's request and provide a concrete, useful and tangible result of transmitting to the user a created web service coordination plan according to the user's request. Thus, Applicants respectfully submit that the independent claims are directed to concrete and tangible results as required by 35 U.S.C. § 101. Therefore, it is respectfully requested the rejection of Claims 1-18 under 35 U.S.C. § 101 be withdrawn.

Further, Applicants respectfully traverse the rejection of Claims 1-18 under 35 U.S.C. § 103(a) as unpatentable over Kraft, Payne, and Reed, with respect to amended independent Claims 1, 7, and 13.

Claim 1 is directed to a Web service coordination plan creating apparatus that includes, in part, a coordination plan creating section that is configured to receive a user's request including search conditions for Web services, acquire matching user data in predicate form corresponding to the user's request, and acquire a combination of Web services which satisfies the user's request by logically combining preconditions and post conditions for a plurality of Web services including a first Web service having a precondition matching the user data and a second Web service having a post condition matching the user's request.

In addition, the coordination plan creating section is configured to unify the preconditions and post conditions for the plurality of Web services by replacing predicate arguments represented as variables with corresponding predicate arguments representing values of a state of the user. Each occurrence of a same variable in the predicates is replaced with a same value of the state of the user.

Further, the coordination plan creating section is configured to create a Web service linking plan that indicates a sequence of performing the combination of Web services based on the unified predicates, where the second Web service included in the combination of Web services is arranged to be performed after the first Web service included in the combination of Web services. Independent Claims 7 and 13 include steps performing functions that are similar to the features of the apparatus in Claim 1.

Applicants' Figure 2 shows a non-limiting example of a web server 1 (e.g., web service coordination plan creating apparatus) including a user data section 12 (e.g., first storage section) and a web service data section (e.g., second storage section). Further, Applicants' Figure 3 shows a non-limiting example of user data that may be stored in the first storage section, and the user data includes predicates such as "LocatedAt" and "HaveMileageAccount." The predicates in the user data have predicate arguments that indicate specific values of a state of a user. For example, the "LocatedAt" predicate includes

predicate arguments “Tanaka” and “Tokyo” indicating that the user “Tanaka” is “LocatedAt” “Tokyo.” In other words, the predicates in the user data stored in the first storage section have particular values for arguments.

Applicants’ Figure 5 shows a non-limiting example of a database of preconditions and post conditions for web services 41 to 47 in a second storage section. The preconditions and post conditions are represented as predicates, and the predicates for the preconditions and post conditions include predicate arguments that are variables. For example, the Web service 41 includes a precondition predicate “LocatedAt” that has two predicate arguments represented as variables: “user” and “from.”

Further, the web server 1 may be configured to create predicate data about the post condition through a unification process based on the predicate arguments included in the user’s request data. That is, at the time of creating a sequence of web services for the web service plan, a unification process is performed to substitute the value of predicate arguments in the user data into the variable predicate arguments in the web service database. After unification has completed, the Web service linking plan may be created by comparing the values in the preconditions and post conditions that result from the unification. Further, when the unification process of the precondition for a certain Web service has succeeded, the same unification (i.e., the same variables are replaced by the same values) is applied to the post condition for the Web service, and thus, the post condition is not unified independently of the precondition.

Applicants respectfully submit that Kraft, Payne, and Reed fail to teach or suggest each feature of the independent claims. For example, Kraft, Payne, and Reed fail to teach or suggest unifying predicate variable and value arguments to create a sequence of Web services in a linking plan.

Kraft describes a system that finds a single Web service including a keyword input by the user. In Kraft, the user has to combine the plurality of Web services manually, and the system of Kraft does not automatically calculate any execution sequence of Web services. Further, Kraft is silent regarding any process or apparatus configured to unify preconditions and post conditions by replacing variable predicate arguments with values using a same replacement for each occurrence of a same variable. Thus, Kraft fails to teach or suggest the features of the claimed inventions.

Reed describes a system that executes a sequence of Web services. The execution sequence of Web services (e.g., Web service linking plan) is previously calculated or manually developed by the user. Thus, Reed does not teach or suggest any method or apparatus that creates a Web service linking plan, but merely describes executing a sequence of Web services. In addition, Reed is silent regarding any process or apparatus configured to unify preconditions and post conditions by replacing variable predicate arguments with values using a same replacement for each occurrence of a same variable. Therefore, the system described by Reed also does not teach or suggest any creation of a sequence of Web services.

Payne describes a method for dealing with a meaning of a Web service using a search engine which is one of the Web services. According to Payne, it is possible to write the precondition and post condition of the Web service. However, Payne merely indicates writing the precondition and post condition of a single Web service. Unlike the present invention, Payne does not disclose means for automatically creating a Web service linking plan for an execution sequence of Web services including a plurality of Web services. Payne also lacks the claimed features missing from the disclosures of Reed and Kraft noted above, and in particular, Payne also fails to teach or suggest creating a sequence of Web services

based on predicates that have values that are unified by replacing variable predicate arguments with values.

Accordingly, Applicants respectfully submit that Kraft, Payne, and Reed each fail to teach or suggest an apparatus configured to “unify the preconditions and post conditions for the plurality of Web services . . . by replacing each predicate argument represented as a variable with a corresponding predicate argument representing a value of the state of the user . . . each occurrence of a same variable being replaced with a same value of the state” and “create a Web service linking plan that indicates a sequence of performing the combination of Web services using the unified preconditions and post conditions,” as recited in Claim 1, and as similarly recited in Claims 7 and 13.

Accordingly, Applicants respectfully submit that independent Claims 1, 7, and 13, and claims depending therefrom, are allowable.

Consequently, in light of the above discussion and in view of the present amendment, this application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Eckhard H. Kuesters
Attorney of Record
Registration No. 28,870

Zachary S. Stern
Registration No. 54,719

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413-2220
(OSMMN 06/04)

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